# International FoodTec Conference

Shaping the Future of Sustainable Food Ecosystems

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Net4food

RED DE INVESTIGACIÓN E INNOVACIÓN PARA EL SECTOR ALIMENTARIO

# BOOK OF ABSTRACTS

- Challenges and Opportunities in the Food System of the Transborder Region
- Innovation, Technology, and Food Security in a Changing Global Landscape
- Nutrition and Consumer Trends: Enhancing the Value of Endogenous Resources
- Quality, Food Safety, and Environmental Responsibility
- Marketing, Digitalization, and the Future of the Food Sector
- Strategic Developments in the Net4Food Project

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# TECHNICAL DATA

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## Authors

Lillian Barros (CIMO/IPB, Portugal)

Alexandre Gonçalves (MORE, Portugal)

Sara Vieira (CIMO/IPB, Portugal)

Tiago Reis (CIMO/IPB, Portugal)

Natacha Pinto (MORE, Portugal)

Bárbara Matias (MORE, Portugal)

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## OP19 | VALORIZATION OF FRUIT DISTILLATION POMACES

Lara Serra[1], Inês Pitacas[2], Soraia I. Pedro[2], Bruno Pires[1,3], Tiago A. Fernandes[4,5], Ângelo Luís[1,3], Eugenia Gallardo[1,3], Ofélia Anjos[2,6*]

[1]RISE-Health, Department of Medical Sciences, Faculty of Health Sciences, University of Beira Interior, 6200-506 Covilhã, Portugal; [2]CERNAS-IPCB, Research Centre for Natural Resources, Environment and Society, Polytechnic Institute of Castelo Branco, Castelo Branco, Portugal; [3]Laboratório de Fármaco-Toxicologia – UBIMedical, Universidade da Beira Interior, Covilhã, Portugal; [4]MINDlab: Molecular Design & Innovation Laboratory, Centro de Química Estrutural, Institute of Molecular Sciences, Department of Chemical Engineering, Instituto Superior Técnico (IST), University of Lisbon, Portugal; [5]DCeT, Department of Science and Technology, Universidade Aberta, Lisbon, Portugal; [6]CBPBI, Spectroscopy and Chromatography Laboratory, Centre of Plant Biotechnology of Beira Interior, Castelo Branco, Portugal. *ofelia@ipcb.pt

This study aims to characterise the nutritional composition of distillation pomace from the production of spirits from apple, pear and strawberry tree fruits (STFs) and to assess its potential for valorisation within circular economy and zero waste strategies. Pomace samples were collected after distillation at a distillery in Castelo Branco. Two batches per fruit type, each with three replicates, were analysed. The following parameters were analysed: ash content, organic matter content, protein content, fat content, fibre content, lignin content, hemicellulose content, cellulose content, non-fibrous carbohydrate content, total phenolic content (TPC) and total flavonoid content (TFC). The antioxidant and antimicrobial activities were determined and the compound profiles were assessed by HPLC. FTIR-ATR spectroscopy was applied for chemical fingerprinting. ANOVA and principal component analysis (PCA) were used for data interpretation.

PCA for nutritional parameters explained 96.6% of the total variance and clearly distinguished between the pomaces used. Apple pomace had the highest protein content (6.04 ± 0.07 g/100 g), whereas pear pomace had the lowest (2.83 ± 0.27 g/100 g). STF pomace had the highest fat content (4.71 g/100 g) and was rich in organic matter, fibre, hemicellulose and cellulose. STF and apple pomaces additionally exhibited higher TPC and TFC values. Using HPLC-DAD, we were able to identify 28 phenolic compounds, as well differentiating between the pomaces and confirming the presence of compounds of interest. The highest concentrations were found for resveratrol and syringic acid, particularly in pear extracts (0.73–0.59 µg/mg extract). Benzoic acid, p-coumaric acid and rutin also appeared in relatively high amounts. FTIR-ATR spectroscopy identified functional groups, supporting chemical discrimination and different potential valorisation.

Distillation pomace revealed valuable nutritional and chemical properties, highlighting its potential as a raw material for use in the food industry. STF pomace, in particular, is characterised by its high fibre and bioactive compound content. Further research is needed to optimise its industrial use.

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